California MLPA Master Plan Science Advisory Team
Round 3 Outputs from Bioeconomic Model Evaluations: Biomass and Fishery Yield

October 10, 2010 DRAFT

Table 1a: Total Biomass and Total Fishery Yield. Total biomass and fishery yield predicted for each of seven species for evaluations of round 3 draft marine protected area (MPA) proposals were estimated using the University of California, Santa Barbara (UCSB) bioeconomic model. The total biomass of each species is estimated at equilibrium for each square kilometer of the study region. Values are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Total fishery yield is the total harvest of each species relative to maximum sustainable yield (MSY) of the species with the existing MPAs (proposal 0). For round 3 evaluations, seven species were modeled: Black rockfish, brown rockfish, cabezon, redtail surfperch, Dungeness crab, red abalone and red sea urchin. Model results were calculated for 3 different fishery management scenarios; the results in this table are from the MSY-type management scenario. Total biomass and yield are the average across six of these modeled species. Due to the unique characteristics of the Dungeness crab fishery, this species is presented separately in Table 1b. For Round 3, modelers assumed that no consumptive uses were permitted in proposed MPAs unless identified by species and gear type.

Round 3 MPA Draft Proposal	Species	Total Biomass	Total Fishery Yield
P0	Black Rockfish	0.47	1
P0	Brown Rockfish	0.42	1
P0	Cabezon	0.38	1
P0	Red Abalone	0.38	1
P0	Red Sea Urchin	0.39	1
P0	Redtail Surfperch	0.41	1
NCP	Black Rockfish	0.48	0.98
NCP	Brown Rockfish	0.44	0.94
NCP	Cabezon	0.39	0.98
NCP	Red Abalone	0.39	1
NCP	Red Sea Urchin	0.4	0.98
NCP	Redtail Surfperch	0.42	0.98

Table 1b: Total Biomass and Total Fishery Yield for Dungeness Crab. Total biomass and fishery yield predicted for Dungeness crab for evaluations of round 3 draft marine protected area (MPA) proposals were estimated using the University of California, Santa Barbara (UCSB) bioeconomic model. The total biomass of Dungeness crab is estimated at equilibrium for each square kilometer of the study region. Values are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Total fishery yield is the total harvest of Dungeness crab relative to maximum sustainable yield (MSY) with the existing MPAs (proposal 0). Model results were calculated for 3 different fishery management scenarios; the results in this table are from the MSY-type management scenario.

Round 3 MPA Draft Proposal	Species	Total Biomass	Total Fishery Yield
P0	Dungeness Crab	0.26	1
NCP	Dungeness Crab	0.3	0.96
SUP	Dungeness Crab	0.3	0.95